Nuclear Division News

A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

Vol. 7, No. 11/May 27, 1976

Carbon-graphite technology utilized in solar energy panels

Carbon and graphite technology originally developed at the Oak Ridge Y-12 Plant in support of the nation's space and defense programs has been applied to a new research area — the development of a high heat absorbent coating for solar energy collection panels.

The Development Division has supplied a special carbon coating for solar collector panels to be used on the University of Tennessee's solar energy demonstration house under construction on Alcoa Highway. The coating costs far less than other solar paints of similar efficiency. Experiments conducted at Y-12 indicate that it has a higher selectivity for solar energy absorption.

The purpose of solar collection panels, usually located on the roof of a house, is to absorb the energy of the sun and transfer it to water (or some other medium) which is circulated through coils attached to the panels. The hot water can then be used in supplementing the building's heating supply. Research is under way in a number of organizations to develop methods of obtaining higher efficiency in heat absorption on the collector panels and to find ways to manufacture these components less expensively.

Small carbon particles

The paints or coatings for such collectors are especially important because they must be able to retain the solar energy rather than re-radiate it. They must also be able to withstand elevated temperature without being destroyed. Most of the black paints presently used for collection of solar radiation are based on some sort of carbon black as the pigment. The carbon particles in the best commercial heat-absorbing paints are of a size that tend to re-radiate much of the solar heat.

By using selected sizes of larger carbon particles, however, it is

(Please turn to page two)

White named manager of Technical Services

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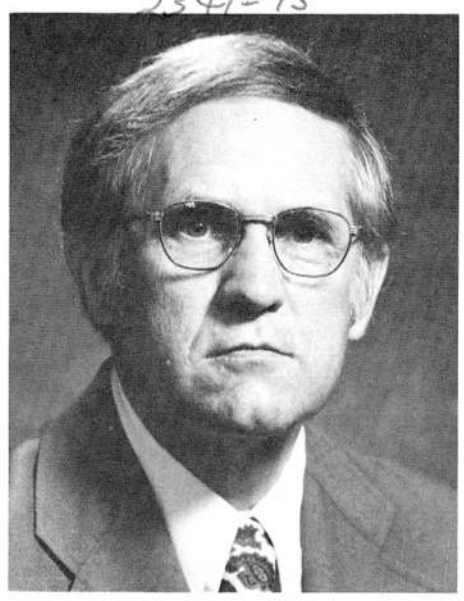


James C. White

James C. White, who has been director of the Analytical Chemistry Division at Oak Ridge National Laboratory for the last four years, has been named Technical Services Manager for Union Carbide Corporation's Nuclear Division production facilities. His appointment, effective June 1, was announced today by William J. Wilcox Jr., Technical Director for the production plants of the Nuclear Division.

White succeeds Clayton D. Zerby who recently was appointed director of the Nuclear Division's Office of Waste Isolation.

White will coordinate and manage technical services, including analytical laboratory, inspection, certification, quality assurance, and personnel and environmental monitoring services at the Oak Ridge Y-12 Plant and the Oak Ridge Gaseous Diffusion Plant.

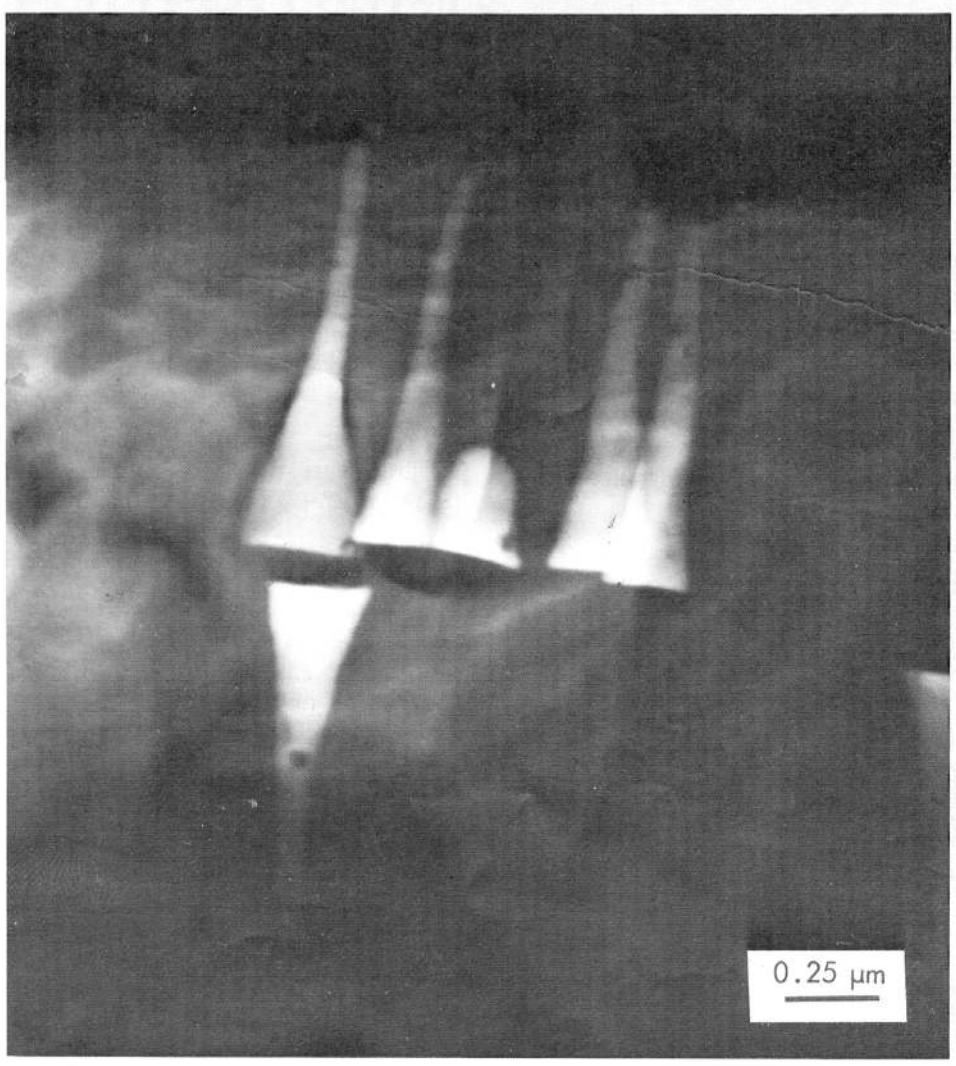
A native of Fort Wayne, Ind., he received his bachelor of science degree from Indiana University and his master's degree and Ph.D. from Ohio State University.

He has been with the Nuclear Division since 1950 when he joined the staff. He served as a group leader in Analytical Chemistry until 1960 when he was named assistant director in charge of research and development. In 1967 he was named assistant director in charge of research and development. In 1967 he was named associate director of the Division, and in 1972 became Divison Director.

A Fellow of both the American Association for the Advancement of Science and the American Institute of Chemists, he holds memberships in several professional organizations. At present he is secretary of the Analytical Chemistry Division of the International Union of Pure and Applied Chemistry. He has served as secretary-treasurer and chairman of the American Chemical Society's Analytical Chemistry Division. In 1974 he was elected chairman of the Federation of Analytical Chemistry and Spectroscopy Societies.

White is married to the former Mary L. Frechtling, and they have four children. The Whites live at 4525 Shenandoah Trail, Knoxville.

What eats coal and looks like this?



That's not a riddle, but a scientific puzzle revealed by research on coal sponsored by the Energy Research and Development Administration's Division of Physical Research at the Oak Ridge National Laboratory. A high-voltage electron-microscope photograph, magnifying a thin section of coal 400,000 times, has shown the existence of very small, channel-like pores or voids — each two to three millionths of an inch in diameter.

How did they get there? The small particles visible in each of the golf-tee-shaped structures, dubbed "coal bugs" by researchers in ORNL's Metals and Ceramics Division, are believed to have "eaten" their way into the coal, creating the voids and producing gas in the process. Efforts are currently under way at the Laboratory to identify the particles, which may be catalysts, in order to discover whether nature has provided a better way of gasifying coal than man has been able to invent so far. Knowledge of the pore structure, the identity of the mysterious "coal bugs," and their action as catalysts can contribute to the development of improved processes for producing clean liquid and gaseous fuels from coal.

inside . . .

Carbon-graphite technology

(Continued from page one)

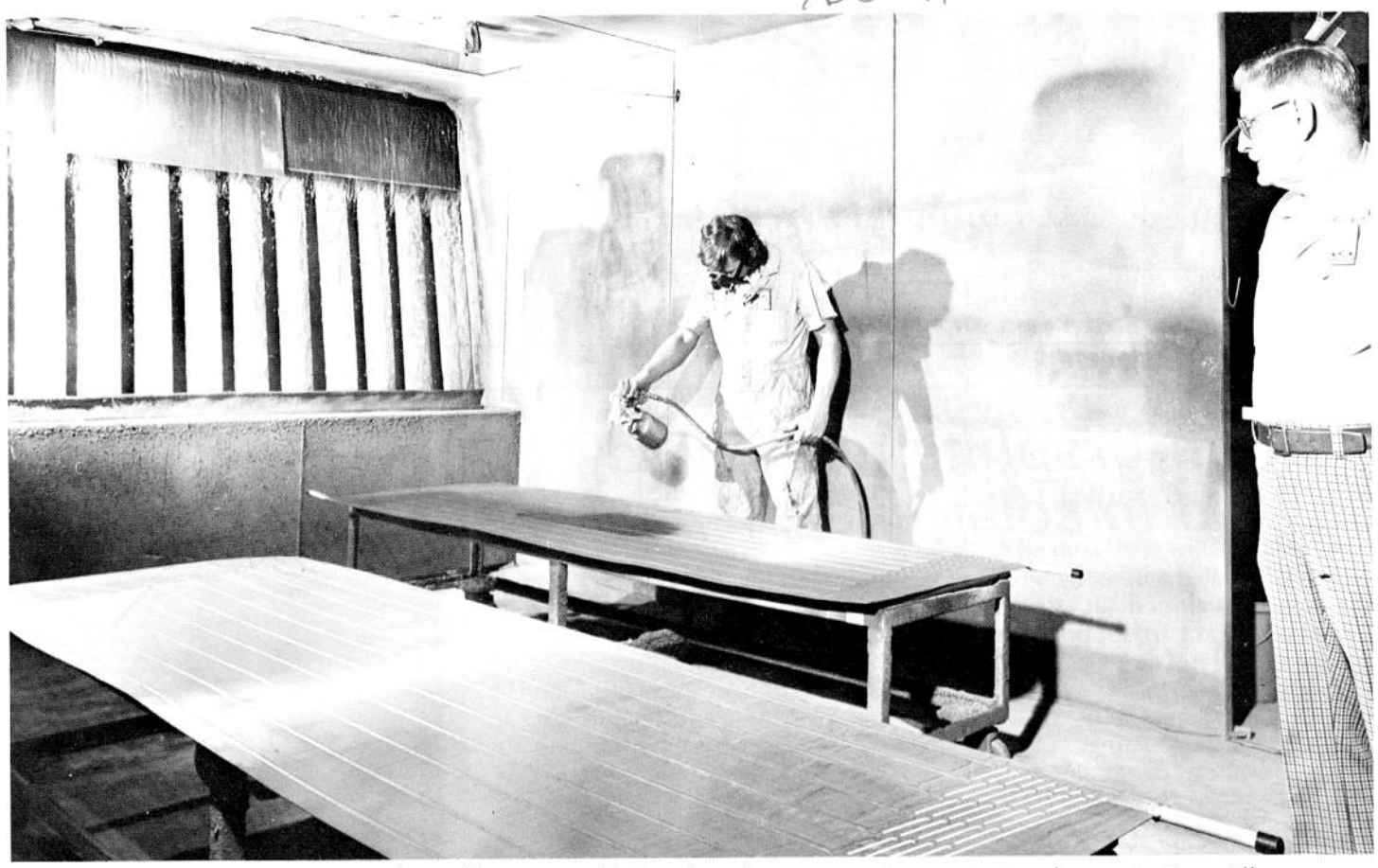
possible to increase the heat-trapping potential of the coating. In recent years, the Y-12 Plant has conducted some developmental work with carbon particles in the size range of ten millionths of an inch to thousandths of an inch. Selected carbon particles from this size range had demonstrated in previous experimentation the ability to withstand high temperatures and appeared promising as a base for solar coatings.

Report available

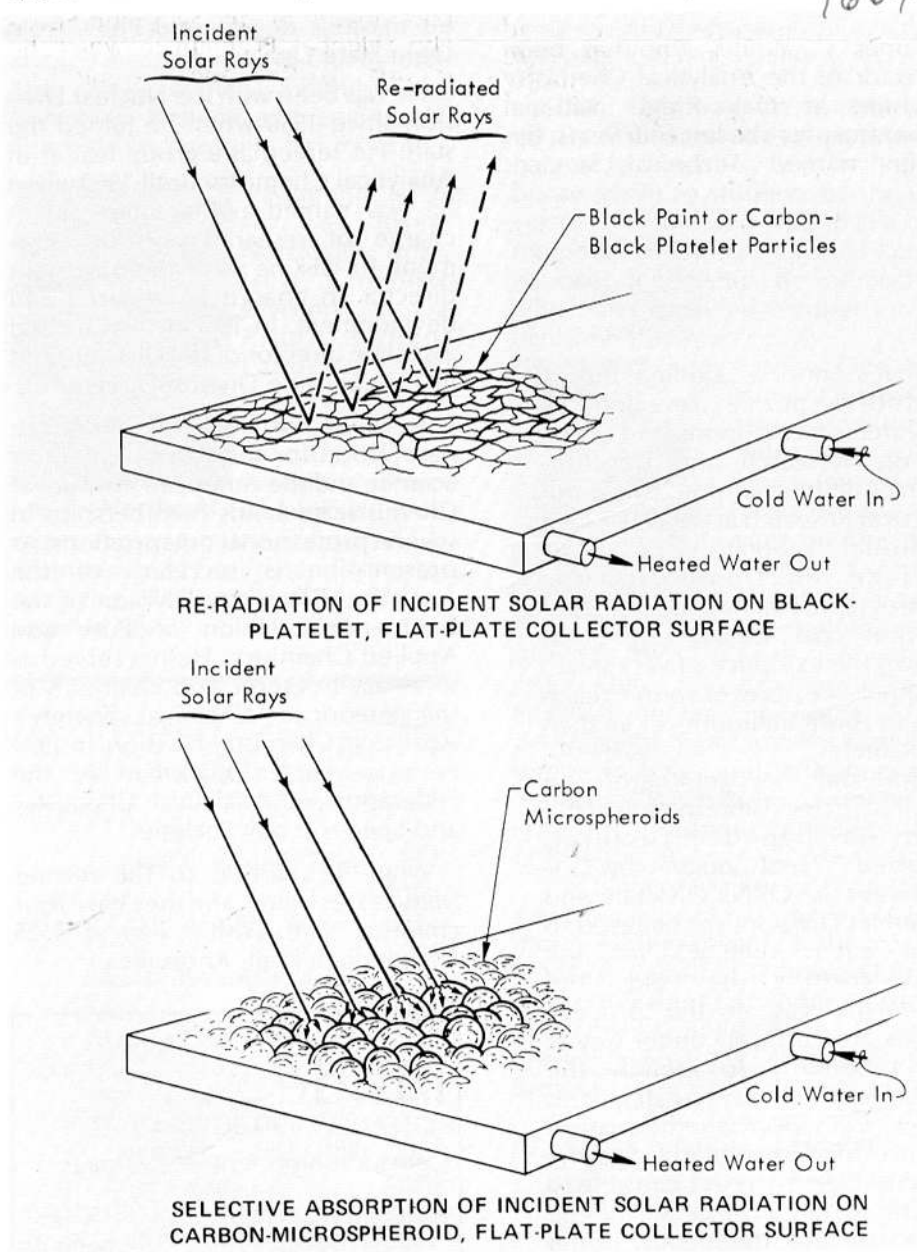
Tests were conducted in the Development Division to compare the heat absorption capability of the carbon coatings with the best of the available low-cost commercial coatings such as the black velvet paints. The tests are described in a report entitled "Selective Absorptivity of Carbon Coatings," Y/DA-6701, authored by James M. Schreyer, Charles R. Schmitt, John M. Googin and H. D. Whitehead.

It is theorized that the carbon coatings were more effective because the particles sizes were better selected to trap sunlight than those found in the other paints. The optimum particle size for carbon particles used in solar collection panels would be that which corresponds with the wavelength of light. The particle sizes near twenty millionths of an inch would appear to be near optimum for retaining solar energy. The individual "bundles" of light are more easily trapped within and between particles of this size.

The report suggests that further perfection of particle size and shape should improve on the gain realized in the initial experiments.



COATING SOLAR PANELS — Solar collector panels for the solar energy demonstration house in Knoxville are sprayed with a special carbon coating by Doug Kidwell in the Y-12 paint shop. Foreman Robert Martin looks on.



SELECTIVE ABSORPTION — The carbon microspheroids in the bottom drawing have demonstrated a greater ability to absorb solar radiation than carbon particles used in the best solar absorption paints, indicated in the top drawing.

question box

If you have questions on company policy, write the Editor, Nuclear Division News *(or telephone your question in, either to the Editor, or to your plant contact). Space limitations may require some editing, but pertinent subject matter will not be omitted. Your name will not be used, and you will be given a personal answer if you so desire.*

Merit increase timing?

QUESTION: I received a merit increase early in 1975, and later in the year, a salary adjustment, along with a lot of other ND employees. My supervisor tells me that my next merit increase will be timed from the salary adjustment, rather than my last merit increase. Is he correct?

ANSWER: If your last increase was a pure adjustment and was not a combination merit and adjustment increase, normally the base point used for timing of the next merit increase would be the date of your last merit increase. If, after discussing this matter again with your supervisor, you still have questions, you should check with the salary administration office at your installation.

Employee relations coordinator

QUESTION: Does the responsibility of the Employee Relations Coordinator at ORGDP include development of an employee relations program designed to identify job-related problems in the exempt as well as the nonexempt salaried community? In this regard, would the coordinator be receptive to suggestions from monthly personnel at ORGDP? How can he be contacted?

ANSWER: The Employee Relations Coordinator at ORGDP is charged with the responsibility of servicing the entire salaried community. Tom Zava, who is located in Trailer K-1560-E, can be reached at extension 3-3021.

Cost-of-living increase?

QUESTION: Is there a possibility of a cost-of-living increase being granted to weekly salaried employees in the near future?

ANSWER: No. Although economic conditions are taken into account when salary programs are planned each year, Union Carbide salary policy does not provide cost-of-living increases as such.

Recycling papers

QUESTION: Employees in the Environmental Protection Agency's headquarters in Washington have stopped tossing used stationery, typing paper, and other high-grade office paper into wastebaskets. The materials are now being placed in special containers on employees' desks. They are then collected for recycling. The program is expected to result in 20-25 percent savings in solid waste collection and disposal costs.

Why doesn't Nuclear Division start a recycling program like this?

ANSWER: During 1971-1973, a program was set up to recycle waste paper and used cardboard boxes. During this period, most all waste paper and cardboard was sold. After gaining experience, the recycle endeavor was revised whereby only certain paper products, such as tabulating cards and continuous forms, are now collected and sold periodically. Efforts to sell other waste paper products have not produced desirable results because of the lack of buyers' interest and the cost associated with the extra handling involved.

The Company's Surplus Sales Department keeps abreast of waste paper market conditions; and, when handling costs can be recovered, other waste paper products will be collected and sold.

anniversaries

ORGDP

30 YEARS

Helen S. Saylor, Engineering Division; Albert V. Faloon, Technical Evaluation Department; Theodore Kwasnoski, Chemical Analysis Department; James C. Gann, Development Maintenance; Jackson G. Thompson, Experimental Barrier Development; and Alvin D. Hair, Oak Ridge Area Electricity Distribution Department.

25 YEARS

Rubin M. Chadwick, Carlyle A. Goddard, Earl J. Tullos and William O. Ogieglo.

20 YEARS

Joseph B. Adams and George D. Bowen.

GENERAL STAFF

30 YEARS

Fred Campbell, Computer Sciences Division; Robert L. Wilkins, ORGDP Management Services; Nancy A. Hay, ORGDP Operations; Harry E. Shell, Purchasing Division; and Theodore F. Wagner, Central Employment Department.

Y-12 PLANT

30 YEARS

Virginia B. Newby, Dispatching Department; William E. Tewes, Development Division; and Lawrence H. Perry, Plant Protection Department.

25 YEARS

Sam N. Tadlock, Ralph E. Gibson, Robert L. Gouldy, Jack D. Lindsey, Paschall S. Greene, Charles R. Harris, Charles W. Hamill, Max F. Wallace, Robert H. Angel, Anen P. Brown and Harvey F. Ballenger.

20 YEARS

Ernest W. Young, Oscar T. Smith, William D. Sisson Jr., Roy A. Campbell, Donald E. Parten, Roger L. Letner, John Carroll Jr. and Anders R. Rutherford Jr.

PADUCAH

25 YEARS

Thomas V. Grooms, Earl W. Richardson, Alton Rodgers Jr., Robert E. Jessing, Mary N. Nelson, Howard L. Ross, Fred H. Amonett, Hugh G. Coltharp, Charles M. Borden, Ronald E. Terrell Jr., Loise L. Arnold, James K. Luton, Lee Floyd, Everett H. Tomlinson, Clarence W. Herndon, Carl H. Watkins, Raymond E. Brust and John B. McGinnis.

20 YEARS

Paul C. Forker.

ORNL

30 YEARS

Raymond E. Blanco, Chemical Technology Division; Garfield Hardin, Plant and Equipment Division; Dorothy S. Harper, Information Division; James A. Cox, Operations Division; Ralph L. Pritchard, Plant and Equipment Division; Wanda C. Massey, Analytical Chemistry Division; Haywood N. Settles, Finance and Materials Division, and Edna C. Whittington, Information Division.

25 YEARS

Clarence W. Mee, Harvey C. Austin, Vincen C. Rogers, Hubert T. Milton, John V. Cathcart, Thurman L. Miller, Violet L. Sanford, Joseph D. Hudson and Frank Huber Jr.

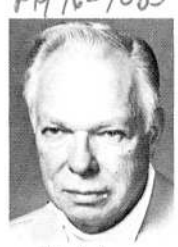
20 YEARS

John L. Anderson, Bobby W. Stout, Ebb Moore, Roger A. Jones and Bonnie S. Reesor.

retirements

PH76-1084 PH76-1085 PH76-1003 PH76-1139 PH76-1140

Battle



Fletcher

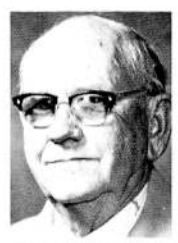
French

Marquardt

Walls

Arthur

Dykes



Kennemore

McCloud

Oakes

Four employees retire from the Oak Ridge Gaseous Diffusion Plant June 30, and another "old-timer" will retire at the end of this month.

John H. Battle, Power and Utilities Maintenance, joined Union Carbide more than 30 years ago. He lives at 810 Patton Ferry Road, Kingston.

Marion A. Fletcher, with almost 32 years company service, lives at 213 Belle Aire Drive, Concord. He is in Power and Utilities in the Operations Division.

Bill B. French, Laboratory Division, came to ORGDP in 1947. He lives at Route 7, Harriman.

Arthur P. Marquardt, Engineering Division, has more than 29 years at ORGDP. He retires to his 606 Pennsylvania Avenue, Oak Ridge, home.

Harlan R. Walls, who will retire at the end of this month, lives at 7404 Sheffield Drive, Knoxville. He joined Union Carbide in 1945 and retires from the Fabrication and Maintenance Division.

Five Oak Ridge National Laboratory employees will retire at the end of May.

Darrel E. Arthur, a health physics supervisor in Health Physics Division, will take early retirement after 30 years with the Nuclear Division. Arthur lives at Route 1, Crossville.

Wayne H. Dykes, a 32-year employee, will take early retirement from his position as services coordinator in Plant and Equipment Division. Dykes' home is on Bob Gray Drive, Concord.

A nuclear reactor controller in Operations Division, William D. Kennemore will take early retirement. Kennemore, who lives at 3932 Deerfield Road, Knoxville, has been with the Nuclear Division since 1945.

Charles O. McCloud will end nearly 27 years of company service with his retirement from Plant and Equipment Division, where he is a pipefitter/helper. McCloud makes his home on Dolph Drive, Knoxville.

Raymon E. Oakes, a maintenance supervisor in Plant and Equipment Division, will take early retirement. Oakes joined the Nuclear Division in 1943. He lives on Clayberry Drive, Knoxville.

Carl Gehrs to coordinate Synthetic Fuels-Life Sciences

Carl W. Gehrs has been appointed Coordinator of the Synthetic Fuels-Life Sciences Program at Oak Ridge National Laboratory. Gehrs' appointment was announced by Chester R. Richmond, ORNL Associate Director for Biomedical and Environmental Sciences.

The conversion of coal into clean synthetic fuel products is an urgent national objective, but potential hazardous substances are also produced when coal is converted. Gehrs will coordinate all laboratory activities that are directed toward insuring that the technological development of synthetic fuels derived from coal is amenable to man and his environment.

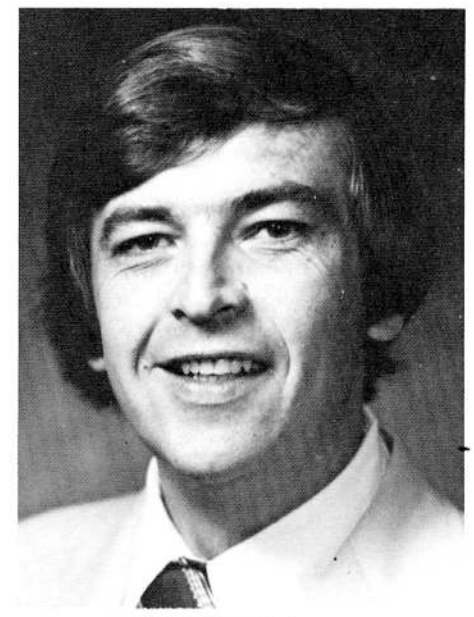
Eight divisions involved

The program will provide timely information and data to insure that potential hazards are identified and characterized, and that methods for monitoring them are developed. Information will be developed on the carcinogenic, mutagenic, teratogenic and toxic properties of materials generated by coal conversion technologies. The persistence, transformation, food-chain kinetics and fate of effluent components will also be determined to allow a total assessment of their potential impact on the environment.

Eight ORNL divisions in the life-sciences area are currently involved in this interdisciplinary effort related to coal conversion. Included are Analytical Chemistry, Biology, Chemical Technology, Energy, Environmental Sciences, Health, Health Physics and Information.

Will continue effluents post

During the past year, Gehrs has served as interim coordinator of the developing program, and has worked very closely with Richmond and representatives from the participating divisions in program planning activities for the Energy Research and Developmental Administration's Division of Biomedical and Environmental Research and other organizations.



Carl W. Gehrs

Gehrs, a native of Elmhurst, Ill., received his bachelor's degree from Concordia Teachers' College, his master's degree in biology from Kansas State Teachers College, and his Ph.D. in zoology from the University of Oklahoma. He joined the staff of ORNL's Environmental Sciences Division in 1972.

In addition to his new position as coordinator of the Synthetic Fuels-Life Sciences Program in which he reports to Richmond, Gehrs will continue as leader of the Coal Conversion Effluents Project, reporting to Environmental Sciences Division Director Stanley I. Auerbach.

Gehrs holds membership in several professional organizations including Sigma Xi, the Societas Internationalis Limnologiae, Ecological Society of America, and the American Association for the Advancement of Science. He resides with his wife, Judi, and three children in Oak Ridge.

ORCMA tells new performance series

Ursula Oppens, pianist, and Masuko Ushioda, violinist, will highlight the Oak Ridge Civic Music Association Concert and Chamber Music Series for 1976-77.

The concert season will open October 23 with the Oak Ridge Symphony Orchestra performing Mendelssohn's *Scotch Symphony*. Subsequent performances will include Miss Oppens, November 13; the Oak Ridge Chorus performing the Christmas portion of Handel's *Messiah*, December 4; and Miss Ushioda, March 26, 1977.

The Chamber Music Series has scheduled the Concord String Quartet, now in residence at Dartmouth College; the Japan Trio; the Musica de Camera, a baroque ensemble of three strings, flute, oboe and harpsichord; and the Talich String Quartet, to be accompanied by clarinetist Gervase de Peyer.

Paducah Plant celebrates 25th anniversary

It all began 25 years ago this spring in Paducah. Approximately 6,200 acres of land were purchased from Kentucky residents by the Atomic Energy Commission. Added to some 1,360 acres which were already government-owned, the tract became the site of the Paducah Gaseous Diffusion Plant.

The Paducah Plant's original design consisted of 880 stages in two process buildings, C-331 and C-333. The stages are about the same size as those in the K-31 and K-33 buildings at ORGDP.

In 1951, the AEC's need for additional facilities led to the design of C-335 and C-337. These buildings duplicate the original two and are operated in a parallel arrangement, doubling the size and productive capacity of the original stages. The plant represents a total gross value of $791 million.

Some random photographs from the files of the Energy Research and Development Administration's Oak Ridge Operations show early construction at PGDP. They were taken by Ed Wescott, now in ERDA's Washington office.

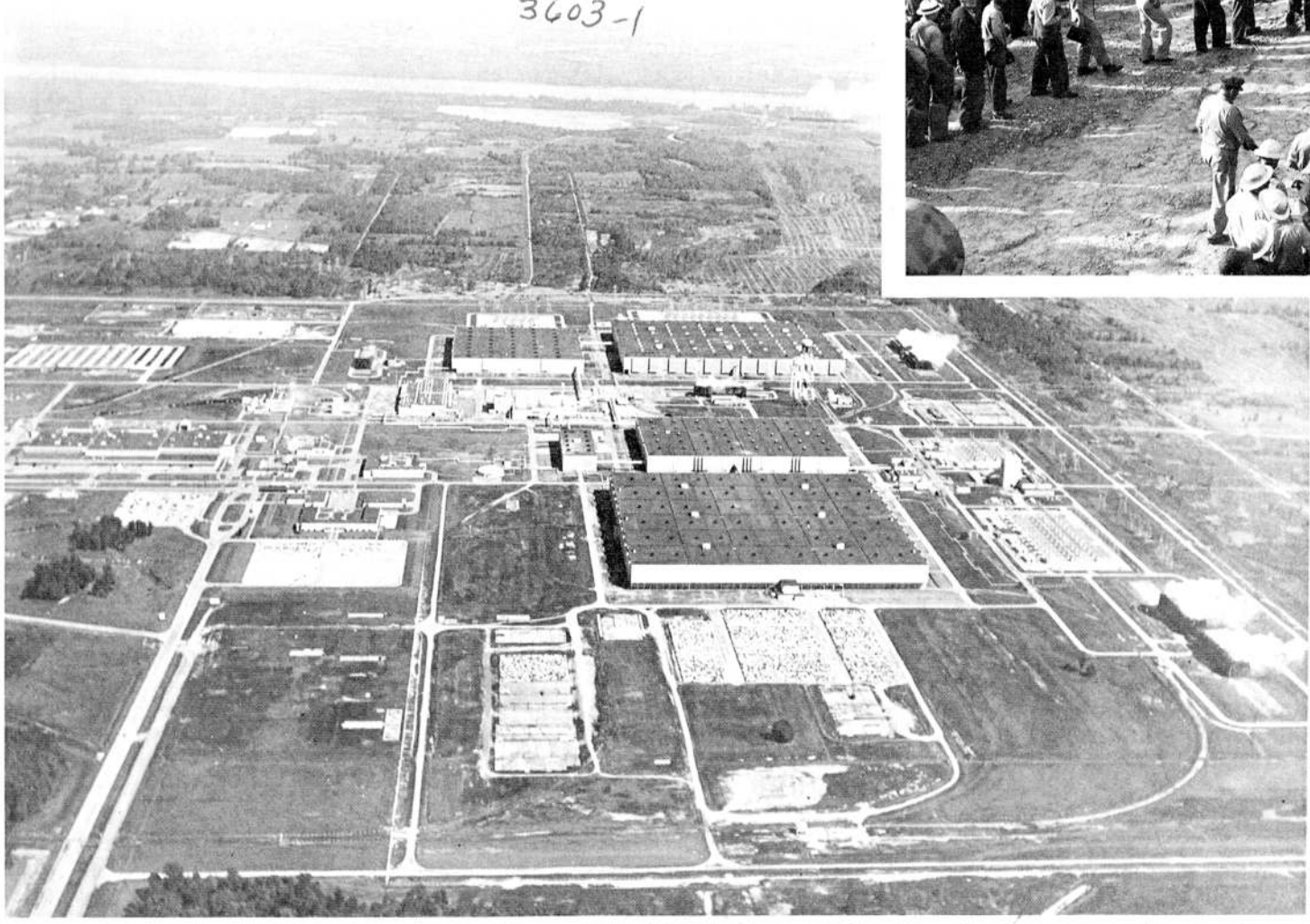
PROGRESS CHECKED — Officials check the progress of the construction of the huge gaseous diffusion plant at Paducah. Over the blueprints, from left, are F. C. Belcher, AEC; F. J. Mayo, project manager for F. H. McGraw Company, the construction contractor; and E. A. Wende, AEC.

3603-1

DEEP EXCAVATION — A huge hole marks the location of the switch house at PDGP, Building C-531. This Spring marks the 25th anniversary for the huge complex at Paducah.

8058-11

BEFORE AND AFTER — Some 3,000 construction workers queue up at clock alleys for F. H. McGraw Company, at Paducah. McGraw was the prime construction contractor for the building of the PGDP. The Atomic Energy Commission announced in December, 1950, that the sprawling plant would be constructed, and ground was broken the following spring. Initially, the AEC said that approximately 1,500 employees would be employed at the plant. The employment count now is past 2,000. Union Carbide Corporation's Nuclear Division has operated the plant since its construction.



SPRAWLING ERDA COMPLEX — 25 years after its ground-breaking, this is what the Paducah Gaseous Diffusion Plant looks like today. The sprawling Energy Research and Development Administration plant has been operated by Union Carbide since its beginning in 1951.

Oak Ridge Gaseous Diffusion Plant names new supervisors

PH76-1042 PH76-1119 PH76-1096

D. H. Blanton

R. L. McDougal

W. L. Turner

B. J. Watson

Four new supervisors have been named at the Oak Ridge Gaseous Diffusion Plant.

Donald H. Blanton, Cascade Operations, came to ORGDP last year, after serving as an instructor at Western Carolina University. He has a master's degree in business administration from that university.

A native of Forest City, N.C., he lives on Hilltop Road in Kingston. His wife is the former Connie Price.

Robert L. McDougal, a native of Enterprise, W.Va., has been at ORGDP one year. He worked with Lockheed Aircraft in Marietta, Ga., and Orlando, Fla., prior to joining Union Carbide.

He and his wife, Vera, live at 1017 Corning Road, Knoxville. They have a son, Rodney.

Wendell L. Turner, a native of Oak Ridge, has been at ORGDP two years. He served in the U.S. Navy and attended the University of Tennessee, and is presently enrolled at Roane State Community College.

He has been named a supervisor in Concerter Assembly. His father, Guy Turner, is also employed at ORGDP.

He lives at Route 2, Powell.

Bill J. Watson, a new supervisor in Cascade Operations, was born in Kingston.

He worked with General Motors prior to joining Union Carbide in 1969.

Mrs. Watson is the former Joan Ellis, and they live in the Westshore Estates, Kingston. They have two sons, David and Donald.

167030

Pohto paper takes honors in England

Herbert A. Pohto will receive the Institution of Mechanical Engineers, London, Safety Award in Mechanical Engineering for 1975. It is for his paper "Brittle Fracture of a Large 30,000 psi Isostat and its Twin Vessel Comparison Analysis," presented at the Second International Conference on High Pressure Engineering at the University of Sussex, Brighton, England, last year.

The international honor is presented from a trust fund by the Council of the Institution of Mechanical Engineers for outstanding mechanical engineering contributions to the field of safety. The prize consists of 45 pounds sterling, or a set of leather bound books of the recipient's choice, and a certificate of recognition.

Pohto is on the Y-12 Plant engineering staff and chairman of the Committee on High Pressure Safety. He is also chairman of the Committee on High Pressure Technology of the American Society of Mechanical Engineers and on the task force for the preparation of an ASME design code for high pressure vessels.

Harry Hoy named to head safety information post

4395-76

A new information facility, to be known as the Information Center for Energy Safety (ICES), is being established at Oak Ridge National Laboratory to collect, evaluate, store and disseminate safety information relevant to the development and use of various forms of energy other than nuclear.

ORNL also administers 14 other information centers in support of ERDA programs. The Center is organized as part of the Reactor Division's Safety Information Section under William B. Cottrell.

Hoy heads group

Harry C. Hoy, an electrical engineer who has been a member of Union Carbide's organization since 1947, will be responsible for the operation of the new center. Hoy has served in the Laboratory's Thermonuclear and Isotopes Divisions and was a member of the UCC-ND Engineering Division staff until his recent assignment. He is vice-chairman of the research and development section of the National Safety Council; serves on the electrical hazards panel of the National Academy of Science; and is a past member of the electrical and laboratory review committees for the former Atomic Energy Commission. He also is a member of the Institute of Electrical and Electronic Engineers, the American Institute of Aeronautical and Astronautical Engineers and the National Society of Professional Engineers.

The ICES will be uniquely concerned with the safety considerations and relevant standards in the design, construction and operation of the various nonnuclear energy options and their supportive research facilities. Such systems presently are under development at ORNL and other research laboratories for ERDA.

The new information center will be patterned after the Nuclear Safety Information Center (NSIC) which has been in operation at ORNL since 1963. Information pertaining to nuclear safety will continue to be handled by the NSIC.

Harry C. Hoy

To begin June 1

The ICES will process documents, journals, meeting and symposium reports, and foreign literature to compile relevant information and will have access to energy data previously compiled by ERDA's Technical Information Center and the NSIC. Information thus acquired will be evaluated and disseminated in various forms such as reports, bibliographies, journal articles, newsletters, periodic reports, answers to inquiries or other formats required by users. It is also anticipated that the Center will prepare state-of-the-art reviews of the safety of various energy systems and compilations of relevant safety standards, codes and specifications.

Hoy said the ICES is scheduled to begin operation June 1, but will not be able to provide the full range of dissemination services for several months. The Center will, however, attempt to answer inquiries pertinent to its subject area.

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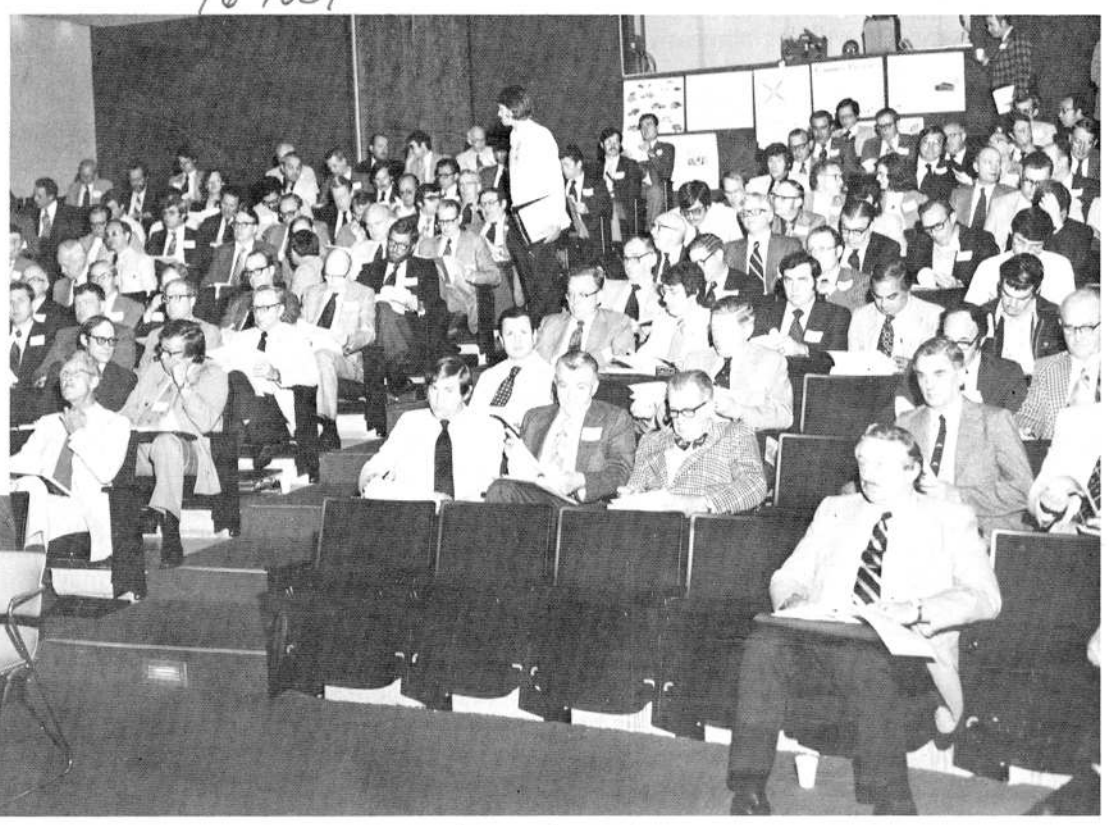


WASTE ISOLATION CONFERENCE — A special conference designed to inform prospective participants of the various aspects of the new nationwide nuclear waste isolation program recently drew more than 250 registrants. Clayton D. Zerby, head of the Office of Waste Isolation of the Nuclear Division (insert) addressed the full-day seminar which was held at the American Museum of Atomic Energy.

wanted

Y-12 PLANT

RIDE from Tacora Hills section, Clinton, to Central Portal, straight day. Geneva Gracey, plant phone 3-5481, home phone Clinton 457-1384.

CAR POOL MEMBERS from Concord area to any portal, straight day. J. C. Taylor, plant phone 3-7510, home phone Knoxville 966-5163.

RIDE or will join CAR POOL from University of Tennessee area, to North Portal, straight day. Clyde Davenport, plant phone 3-7238.

ORNL

ONE RIDER from Fountain City area to East Portal, 8-4:30. George Hamilton, plant phone 3-6914.

recreationotes

All Carbide bowling

The Carbide Family Summer Bowling League will begin next Thursday, June 3. Anyone interested in joining or forming a team should contact Edith Duckworth, extension 3-3874, or James Steele, 3-7870.

Paducah swim program

The Paducah Plant's Recreation Department is gearing for another swim season. Special certified instructors will be available for a four-week course in swimming, beginning July 10.

Regular swimming will begin June 26 at the Bob Noble Pool and will extend through August 28, from 9 to 11:30 a.m.

The special instructions will be held from 9 to 10:30 a.m. and will include adult beginners, teen beginners, preteen beginners, and moms and tots beginners. There is a limit of 190 applicants, so entries should be submitted soon. Entry forms are available at the Recreation Office, Cafeteria and at all the exits. You may begin registering for the special courses on June 10, and entries will close on July 6.

Hi power rifle

Jack Spurling, Y-12, won the third match of the High Power Rifle League with a 755 out of a possible 800. Harry Hoy, also of Y-12, took second place with 734 . . . as A. Abbatiello, ORGDP, came in third with a 716.

.22 pistol league

In the .22 caliber pistol league, it was E. T. Johnson, firing high scratch score of 281.000; J. E. Brewer, 269.667; and E. A. Scott, 260.636. In handicap firing it was T. Lemons, 289.008; N. F. Kuneman, 288.422; and V. F. Raaen, 288.194.

The summer league will hold its first match, Tuesday, June 1, at the Oak Ridge Sportsmen's Association. Firing gets underway at 6 p.m. and will be held on all subsequent Tuesdays until August 24. Any employees of Union Carbide is eligible to shoot in the matches. Additional information may be obtained from R. C. Gwaltney, league director, at extension 3-7648.

Let recreation help with summer activities; discount tickets offered

Is holiday planning bugging you? The Recreation Department can assist you in travel plans with brochures and pamphlets from almost anywhere.

There is resort information available from all parts of the country. Drop by their travel stand and see in what exotic place your family would like to spend a vacation.

The Recreation Department is located in Building 9711-5 in the Y-12 Plant, beneath the Cafeteria. If you can't drop by, their telephone extension is 3-5833, and they will be happy to mail you information on the area of your choice. They also offer discount tickets to Opryland, Six Flags over Georgia, and Disney World . . . three major attractions within short driving distance of Oak Ridge.

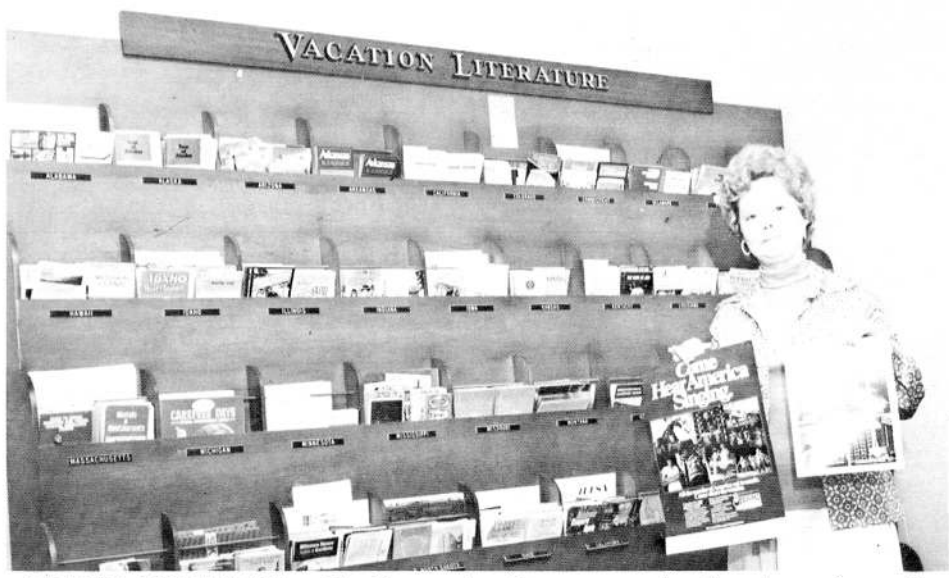
Recreation also advises that lifeguards go on duty Monday, June 7, as the beach opens for swimming. The Clark Center Recreation Park is fine for a later afternoon picnic, but reservations are advised for large parties.

Summer students, co-ops, visiting employees are all welcomed in the recreational program for the summer. There's lots to do besides play golf, bowl, softball activities, etc.

A calendar for summer events will appear in the next issue of *Nuclear Division News*.

Softball standings will begin in early June.

Group golf lessons will also be initiated if enough interest is shown. If interested, call Recreation, extension 3-5833.



TRAVEL ASSISTANCE — The Recreation Department has brochures from all over the country to show vacation spots you never heard of. Sue Martin is seen before the literature rack. The department is located in Building 9711-5, Y-12, beneath the Cafeteria.

Engineering plans bicentennial holiday at park, Saturday, June 5

A "Bicentennial Holiday" is the theme of the annual Engineering Division picnic set for June 5 at the Clark Center Recreation Park. Festivities are planned to begin at 1 p.m. with entertainment and activities for the entire family.

Theme music commemorating the season will be played throughout the afternoon. Featured music will be provided by the Sweet Adelines (harmony), the Hollifield Mountain Ball and Chain Gang (Bluegrass), and the Night Shift (contemporary). In addition, the Cloggers will demonstrate their fancy steps. For the weekend athlete, there will be team sports such as softball and interdepartmental challenges, plus general recreational events such as volleyball, badminton and horseshoes. An arts and crafts exhibit will be held and Madame Millie will be on hand to tell fortunes. For the children, there will be games such as "Simon Says" and tug-of-war. There will also be a puppet show to delight the children, and magic will be provided by Lem, the Hillbilly Magician.

The climax of the picnic is a big barbecue supper which will be served from 5 to 6:30 p.m., followed by a drawing for door prizes.

Tickets are $2 for adults, $1 for children, and are available from all department secretaries in the Engineering Division.

That's Saturday, June 5, at the Park.

ORGDP bowling

The Amps took the Wednesday League hands down, as the Planners took second place. Frank Horton's high single handicap game of 294 was high and his series of 795 took top prize too. John Peer held the highest league average; and Charles Goodman took the pot for the most improved bowler. High scratch game went to Charley Hale, 246.

Bicentennial art

BERRY-LINCOLN STORE — Commemorating the country's Bicentennial, Ruby Jones, Oak Ridge Gaseous Diffusion Plant, has printed her first limited edition print of the Berry-Lincoln store. The print size is 16" x 20" in full color and depicts the scene of Lincoln's failure as a businessman at the age of 24.

Ruby Jones, Development Maintenance Department at the Oak Ridge Gaseous Diffusion Plant, has released her first print edition in her Bicentennial series, "Lincoln's Frontier — the Berry-Lincoln Store."

The store is at New Salem, Springfield, Ill., where Lincoln spent his early manhood and failed as a merchant in 1833. Lincoln's frontier was never larger than 25 cabins. The split rail fence, symbolic of the lanky statesman, runs along the entire frontier, which was restored in the 1930's and is now Lincoln's New Salem State Park.

Mrs. Jones is in her third year as an artist and will show her work in Gatlinburg this summer and fall. It may also be seen at the Piddle Parlor, Lenoir City.

Hole-in-one!

Art Weinberger, ORNL, was added to the magic circle recently as he aced hole number two at South Hills Golf Course on May 9. The 187-yard, three-par hole earned the hole-in-one, as Art zeroed in with a trusty number three iron.

medicine chest

by T. A. Lincoln, M.D.

(Editor's Note: Dr. Lincoln alternates his regular column with "The Medicine Chest," where he answers questions from employees concerning health in general. Questions are handled in strict confidence, as they are handled in our Question Box. Just address your question to "Medicine Chest," NUCLEAR DIVISION NEWS, Building 9704-2, Stop 20, Y-12, or call the news editor in your plant, and give him or her your question on the telephone.)

QUESTION: "I have had several small skin cancers removed from my face and my doctor told me to avoid exposure to sunlight. Our family loves to fish, swim and waterski. How can we enjoy the summer and still not damage our skin?"

ANSWER: Excessive exposure to sunlight over a lifetime sometimes leads to skin cancers and always causes premature aging of the skin. If you have daughters who have clear, soft complexions, they should realize that excessive sun exposure is the quickest way to make their skin tough, dry and wrinkled. The damage, unfortunately, is permanent.

Advising you and your family to stay indoors or wear hats and long-sleeved garments is just not realistic. For many people, getting a tan has become a cosmetic and health ritual of summertime. We think we look and feel better, and once we have a good tan we know we don't have to worry about a painful sunburn.

Ultraviolet is culprit

Wavelengths of ultraviolet energy in sunlight in the range of 290 to 315 nanometers are the ones which damage the skin. Much of this energy is filtered out by the atmosphere in the early morning and late afternoon. In some locations, smog probably also filters out some of the ultraviolet energy.

It must be remembered that ultraviolet injury to the skin continues even though a person has developed a tan. Fortunately, many commercial sun screens or suntanning cosmetics are available to help protect the skin. The difficulty is getting people to use them after they have their tan and no longer have to worry about sunburn.

Another problem is the ease with which some of these agents wash off. Sweating or swimming will remove many of them easily and require the sunbather to reapply. Five percent paraaminobenzoic acid (PABA) in 70 percent ethyl alcohol is probably the best and cheapest. One can splash it on and rub it in like after shave or cologne when one gets up in the morning, and it will remain effective through most of the day. The PABA forms a chemical conjugation with constituents of the horny layer of the skin.

More effective, less messy

In one test, the PABA in alcohol continued to provide good protection even after 15 to 20 minutes of swimming. It is recommended, however, that more be applied if swimming contines for a longer time or is repeated. If no swimming occurs, one application should be sufficient for ordinary activities, unless sweating is extremely active. These PABA sun screens can be purchased without a prescription.

The alcohol solution avoids "messy" ointments, "butters" and creams which may contain other less effective screening agents. PABA is also available as a 2.5 percent ester of PABA in a gel which is more like a cosmetic preparation. In one study, the potassium or sodium salts of PABA in 65 percent to 95 percent alcohol did not conjugate chemically or remain adsorbed with the horny layer. (Whether or not this applies to the ester, I could not determine.)

Individuals who are redhaired or who have fair complexions especially need protection. They are much more vulnerable to skin cancers and the aging effect of ultraviolet because they are deficient in skin pigmentation. These people can get a tan by using trioxsalen. This medication is taken by mouth two hours before a fifteen-minute exposure to the sun. It stimulates the formations of pigment and also increases the horny layer, providing additional protection.

Use with care

This treatment has to be used with considerable care, because initially there is greatly increased photosensitivity and a severe sunburn can occur. Occasionally some unpleasant side effects including nausea and gastric irritation occur. The drug can only be administered under careful medical supervision.

Nevertheless, pale-skinned or redhaired young men or girls who would love to have a suntan can get one with a little effort and expense. Following achieving the beautiful tan, the recipient should use PABA to prevent ultraviolet damage to the skin. With care in the use of trioxsalen and conscientious application of PABA, even the redhaired can now safely enjoy the summer sun.

Correction

In the March 4 issue of the *News* I said that patients on diuretic medications which cause loss of potassium from the body should eat foods which supply from 1.5 to 2 milligrams of pottassium each day. This amount should have been 1.5 to 2 *grams* of potassium.

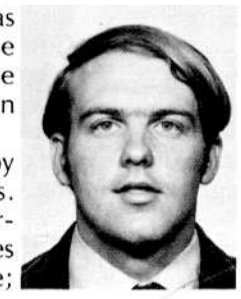
The amounts of bananas and orange juice recommended in the article were correct. For example, three eight-ounce glasses or orange juice or three medium bananas will provide about 1.6 grams. One whole cantaloupe measuring 4.5 inches in diameter will provide .75 grams and a cup of pitted dates 1.1 grams.

The one and only alert reader who recognized the mistake and called me also suggested soy beans or peanuts. They are good sources of potassium, but few people eat the unsalted nuts and the salted ones should be avoided by a person on antihypertensive therapy. Soybean flour or meal now used to expand ground beef is an excellent source of potassium. (The sources of my information are the *Handbook of Nutritional Contents of Foods*, U.S. Dept. of Agriculture, and *Food Values of Portions Commonly Used, by Bowes and Church.)*

PUSH PAYROLL SAVINGS — Representatives from the four Nuclear Division installations met recently to coordinate plans for the 1976 U.S. Savings Bond Campaign, emphasizing the convenience of payroll savings. From left are David D. Barclay, representing Art Edwards, Paducah; Sam Flanders, Oak Ridge Gaseous Diffusion Plant; F. V. "Joe" Tilson, drive chairman from Y-12; Robert Sherlin, Oak Ridge National Laboratory; and Dave A. Jennings, Y-12 chairman.

division deaths

James Larry Borden died May 15 after he was struck by a lightning bolt while fishing on Fort Loudoun Lake. He was a drafting trainee in the Mechanical Development and Engineering Graphics Department of the Instrumentation and Controls Division, Oak Ridge National Laboratory.



Mr. Borden

Mr. Borden was a member of the Madison Avenue Baptist Church in Maryville.

He is survived by his wife, Mrs. Deborah Hill Borden, 1413 Wales Street, Maryville; his parents, Mr. and Mrs. James A. Borden; a sister, Janet Leann Borden; and his grandparents, Gib Morton and Mr. and Mrs. John H. Borden.

Services were held May 18 at Smith Mortuary Chapel, followed by burial in Grandview Cemetery.

Fred C. Hancock, Y-12's Special Services Department, died May 11 at the University of Tennessee Hospital, Knoxville.

Mr. Hancock

Mr. Hancock, a native of Caretta, W. Va., came to Y-12 in 1948. He was serving as a trustee of Local 252 Process Operations, and was a former delegate to the Atomic Trades and Labor Council.

Survivors include a daughter, Faye Dunlap; sons, Fred W., Van G. and Allen L. Hancock; a brother, Ray Hancock; and eight grandchildren.

Funeral services were held at the Grace Lutheran Church with the Rev. Harry J. Lorenz officiating. Burial followed in the Oak Ridge Memorial Park.

Curtis Ray, a long-time employee in Y-12's Building Services Department, died in Harriman May 8.

Mr. Ray

A veteran of the U.S. Army, Mr. Ray was born in Dandridge and came to Y-12 in 1955.

Survivors include his wife, Mrs. Geneva Ray, Route 3, Harriman; sons, Curtis, Gordon and Charles Ray; daughters, Elizabeth Ann, Patricia Ann, Gertie Mae, Mary Dorothy and Janice Ray; brothers Carroll and Henry Ray Jr.; mother, Mrs. Effie Ray; and sisters, Mrs. Willie Jo Taylor and Aman da Suber.

Funeral services were held at the Bazelton Baptist Church, with the Rev. Maco Roddy officiating. Military rites followed at the Bazeltown Cemetery.

safety scoreboard

Time worked without a lost-time accident through May 20:

Paducah	52 Days	635,000 Man-Hours
ORGDP	64 Days	1,857,985 Man-Hours
Y-12 Plant	75 Days	2,161,000 Man-Hours
ORNL	191 Days	3,852,490 Man-Hours

Division sons, daughters take honors

Honored at UT's Law Day

Elizabeth Ann Snyder was honored at the University of Tennessee College of Law at their "Law Day" awards banquet recently in Knoxville. A third-year law student, she received the Knoxville Auxiliary to the Tennessee Bar Association award for the highest scholastic average for the first year of study and the Herbert L. Davis Memorial award for the highest scholastic average for the first two years of study.

Snyder

In addition, Miss Snyder took the West Publishing Company awards for the most significant contribution toward overall legal scholarship during her first and second years of legal study. She was also awarded the American Jurisprudence Book Awards in criminal law and trusts.

Miss Snyder is the daughter of Mr. and Mrs. Robert R. Snyder, 112 Decatur Road, Oak Ridge. Her father is an engineer in Barrier Manufacturing at the Oak Ridge Gaseous Diffusion Plant.

Wins Science Fair honors

Kenneth Darrell Northcutt, a senior at Karns High School, was named a senior reserve champion in the 24th annual Southern Appalachian Science and Engineering Fair held in Knoxville last month.

K. D. Northcutt

Kenneth is the son of Joseph Northcutt, Analytical Chemistry Division at Oak Ridge National Laboratory. His exhibit, "The Reciprocity Effect of Kodak Color Negative Projection Paper," won a $250 scholarship, the Eastman Kodak Company's $25 merchandise award, and the Navy Science Award, an attache case.

He is a member of the Science Club at Karns and is chief photographer on the Karns annual staff. He will enter the University of Tennessee in June, where he will major in electrical engineering.

Earns NSF fellowship

David C. LeDoux, son of Reynolds LeDoux, Operations Division at the Paducah Gaseous Diffusion Plant, has received a three-year graduate fellowship from the National Science Foundation.

LeDoux

A graduate of Lone Oak High School, LeDoux is attending Vanderbilt on a National Merit Association, Vanderbilt and Louisville Courier-Journal series of scholarships. He will graduate this month from Vanderbilt with almost a perfect average in electrical engineering.

A member of Tau Beta Pi, Eta Kappa Nu, the Institute of Electrical and Electronic Engineers and the Engineering Council, LeDoux has served on several university-wide committees. He will attend the Massachusetts Institute of Technology to study in the field of sound and digital signal processing.

Tapped for honor groups

Kristin Oen was one of nine University of Tennessee seniors recently named to Torchbearers, the highest honor given to students by the university. She was also tapped as a new member of Omicron Delta Kappa, national leadership honor society, which has included women for the first time this year.

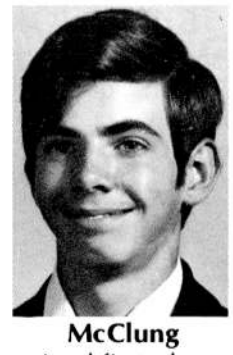
Oen

Miss Oen is a student in the College of Business Administration. Her campus activities include service on the Academic Council, University Center Governing Board, and Student Advisory Board. She is a member of Mortar Board, Beta Gamma Sigma and Phi Kappa Phi honor societies and is founder and editor of "Business Notes," the College of Business Administration newsletter.

She is the daughter of Carol Oen, Technology Utilization/Commercialization officer for the Nuclear Division, and Ordean Oen, a researcher in Oak Ridge National Laboratory's Solid State Division. Their home is at 119 Lehigh Lane, Oak Ridge.

Named Merit Scholar

Craig McClung, a senior at Powell High School, has been named a winner in the National Merit Scholarship program. He will receive a $1,000 scholarship to the University of Tennessee, where he will major in engineering.



McClung

Craig is valedictorian of his class; captain of Powell High School's tennis team; an officer in the band, where he plays saxophone; and editor of the school's newspaper, *Panthers' Pause*. He received first place awards from the UT Computer Center and the Junior Engineering Technical Society in the 24th Annual Southern Appalachian Science and Engineering Fair for his exhibit, "Stress Analysis and Design Optimization of Spandrel-Type Bridges."

He is the son of Mr. and Mrs. Robert McClung of Irwin Road, Powell. His father is in the Metals and Ceramics Division at Oak Ridge National Laboratory.

patents granted

To Roy S. Sitton, Paducah Gaseous Diffusion Plant, for "Adjustable Electronic Load-Alarm Relay."

To George R. Peterson, Y-12 Plant, for "Brazing Graphite to Graphite."

next issue . . .

The next issue will be dated June 10. The deadline is June 2.

GREAT PINES FROM LITTLE SEEDLINGS — Boy Scouts from Troop 320 in Oak Ridge came to the ERDA-Oak Ridge reservation last month to try their hands at planting loblolly pine seedlings on a portion of the area which was cleared to fight pine bark beetle infestation. The loblolly pine is not native to this area but is very resistant to the pine beetle. Settling the seedlings in their new home are, from left, Bruce Sasser, Rusty Higgins, Nathan Brady, Nathan Newport, Brad Perkins and Mark Dahle.

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